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Remarks/Arguments:

Claims 1-10 and 23-32 were pending. Claim 1 is amended, and claims 3, 5, 7, 10 and 23-32 are canceled herein. Thus, claims 1, 2, 4, 6, 8, and 9 are now the pending claims in this application.

Claims 1, 2, 4, 6, 8, and 9 have been rejected under 35 U.S.C. §102(e) as anticipated by Graff et al. (US 6,570,325). Applicants respectfully submit that this rejection is overcome for the reason set forth below.

Applicants note that claim 1, as amended, includes the features of original claims 3, 5, 7, and 10; and that original claim 10 was rejected under 35 U.S.C. §103(a) being unpatentable over Graff et al. Thus, the rejection under §102(e) has been obviated.

Graff et al. disclose an encapsulated organic light emitting device that includes: a substrate, an organic light emitting layer stack adjacent to the substrate, and at least one first barrier stack adjacent to the organic light emitting device. The first barrier stack(s) include at least one first barrier layer and at least one first decoupling layer. The first barrier stack(s) encapsulates the organic light emitting device. There may be a second barrier stack adjacent to the substrate, located between the substrate and the organic light emitting device. The second barrier stack has at least one second barrier layer and at least one second decoupling layer. See Abstract.

However, as stated by the Examiner on page 6 of the Office Action, Graff et al. do not disclose or suggest at least one feature recited in claim 1, as amended, namely:

> ...the thick organic insulation layer in the encapsulation layer is in the range of 10 to 1000 μm in thickness.

Support for this feature of the present invention may be found in the specification at page 12, second paragraph.

Amended claim 1 recites specific thickness values of the various layers of the encapsulation layer, and accordingly provides for specific ranges of thickness ratios between the various layers. According to the disclosure in the specification, such thickness ratio control achieves an unexpected result. For example, as mentioned at pages 5 and 6 of the specification, the present invention achieves improved flexibility of flexible OLED's by the addition of the thick organic insulation layer on top of the thin multilayer structure. As

described in the specification at page 5, fourth paragraph, with reference to Fig. 2, the strain, ε, of any one layer (i.e. labeled n_1) in the flexible OLED structure is given by:

$$\varepsilon = \frac{y}{R},$$

where y is the distance between the n_1 layer (which at the neutral axis and, thus, has no applied strain) and another layer (i.e. the n_0 layer), and R is n_0 layer's curvature radius.

The functional layers of a flexible OLED including the ITO layer, the organic layers and the metal electrode layers, whose total thickness is no more than a few hundreds of nanometers, are all grown on the plastic substrate whose thickness is hundreds of microns. Thus, the functional layers of an unencapsulated OLED located on the surface of the substrate may be easily damaged by bending of the device because the distance y between the n_1 layer (the substrate in this example) and the n_0 layer (one of the functional layers) is large enough to lead to significant strain on the n_0 layer, even for a relatively large value of R. However, when the location of functional layers is very close to the neutral axis layer in the middle of the whole device (i.e. the n_1 layer is one of the functional layers), the device will not be damaged until R is fairly small, i.e. the device is flexed significantly. By adopting the encapsulation method of the present invention and adjusting the thickness of thick organic insulation layer within the range of 10μm to 1000μm, y may be reduced for the functional layers. Thus, when the functional layers are exactly at the neutral axis of the device, folding flexible OLED's may even be realized.

Although Graff et al. disclose that an optional protective layer can be placed on the functional layers, they do not disclose any specific thickness value, nor do they disclose or suggest controlling or adjusting any thickness ratio to reduce strain on the functional layers during flexing of the device.

In view of this deficiency, Applicants respectfully submit that claim 1, as amended, is not subject to rejection under 35 U.S.C. §102(e) as being anticipated by Graff et al., nor is claim 1, as amended, subject to rejection under 35 U.S.C. §103(a) as being unpatentable over Graff et al. Because claims 2, 4, 6, 8, and 9 depend from claim 1, these claims also are not subject to rejection under 35 U.S.C. §102(e) as being anticipated by Graff et al. or under 35 U.S.C. §103(a) as being unpatentable over Graff et al.

Conclusion

In view of the foregoing amendments and remarks, Applicants request that the Examiner reconsider and withdraw the rejections of claims 1, 2, 4, 6, 8, and 9.

Respectfully submitted,

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